

CLAIMS

What is Claimed is:

1. A method of generating optical data encoded in a first format, said method comprising:
 - 5 inputting, into an optical pulse stretcher, optical data encoded in a second format;
using said optical pulse stretcher to convert said optical data encoded in said second format to said optical data encoded in said first format; and
outputting from said optical pulse stretcher said optical data encoded
10 in said first format.
2. The method as recited in Claim 1 wherein said optical data encoded in said second format has a first level of jitter, and wherein said optical data encoded in said first format has a second level of jitter which is
15 no greater than said first level of jitter.
3. The method as recited in Claim 1 further comprising:
generating said optical data encoded in said second format.
- 20 4. The method as recited in Claim 3 wherein said generating includes:
generating a first optical data encoded in said first format, said first optical data having a first level of jitter; and
optically retiming said first optical data to reduce jitter associated with
25 said first optical data such that said first optical data is converted to a second optical data encoded in said second format, wherein said second optical data has a second level of jitter, and wherein said second optical data represents said optical data encoded in said second format.
- 30 5. The method as recited in Claim 1 further comprising:
transmitting said optical data encoded in said first format.

6. The method as recited in Claim 1 wherein said optical pulse stretcher comprises a birefringent medium.

5 7. The method as recited in Claim 6 wherein said birefringent medium is an optical fiber.

8. The method as recited in Claim 7 wherein said optical fiber is a polarization maintaining fiber.

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9. The method as recited in Claim 1 wherein said first format is an optical NRZ (non-return-to-zero) format and wherein said second format is an optical RZ (return-to-zero) format.

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10. A system, comprising:

an optical data generator adapted to generate a first optical data encoded in a first format, said first optical data having a first level of jitter;

an optical retiming device adapted to receive said first optical data and adapted to reduce jitter associated with said first optical data by
20 converting said first optical data to a second optical data encoded in a second format, wherein said second optical data has a second level of jitter, and wherein said optical retiming device outputs said second optical data; and

an optical pulse stretcher adapted to receive said second optical data,
25 adapted to convert said second optical data to a third optical data encoded in said first format, and adapted to output said third optical data encoded in said first format, and wherein said third optical data has a third level of jitter.

11. The system as recited in Claim 10 wherein said third level of
30 jitter is no greater than said second level of jitter.

12. The system as recited in Claim 10 wherein said optical data generator comprises a light source, a modulator adapted to receive light from said light source, a multiplexer coupled to said modulator and adapted to provide electrical data encoded in said first format, and a clock for
5 clocking said multiplexer.

13. The system as recited in Claim 10 wherein said optical retiming device comprises a modulator driven by a clock signal such that said modulator operates as an optical AND gate on said first optical data
10 encoded in said first format and having said first level of jitter.

14. The system as recited in Claim 10 wherein said optical pulse stretcher comprises a birefringent medium.

15. The system as recited in Claim 14 wherein said birefringent medium is an optical fiber.

16. The system as recited in Claim 15 wherein said optical fiber is a polarization maintaining fiber.

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17. The system as recited in Claim 10 wherein said first format is an optical NRZ (non-return-to-zero) format and wherein said second format is an optical RZ (return-to-zero) format.

18. An optical pulse stretcher comprising:
an input for receiving optical data encoded in a first format;
means for converting said optical data encoded in said first format to optical data encoded in a second format; and
an output for outputting said optical data encoded in said second
25 format.
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19. The optical pulse stretcher as recited in Claim 18 wherein said optical data encoded in said first format has a first level of jitter, and wherein said optical data encoded in said second format has a second level of jitter which is no greater than said first level of jitter.

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20. The optical pulse stretcher as recited in Claim 18 wherein said means for converting comprises a birefringent medium.

21. The optical pulse stretcher as recited in Claim 20 wherein said
10 birefringent medium is an optical fiber.

22. The optical pulse stretcher as recited in Claim 21 wherein said optical fiber is a polarization maintaining fiber.

15 23. The optical pulse stretcher as recited in Claim 18 wherein said first format is an optical RZ (return-to-zero) format and wherein said second format is an optical NRZ (non-return-to-zero) format.